

TEACHING GLOBAL WARMING THROUGH TACTILE MAPS AND SHEETS

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EXTENDED POSTER ABSTRACT

Researchers from Argentina, Brazil, Chile and Peru joined to work on a research project led by Chile and supported by the Pan-American Institute for Geography and History (PAIGH-OAS), for developing the proposal to teach blind and deaf school students about the issue of global warming and its consequences for natural events, using tactile maps and shaped sheets.

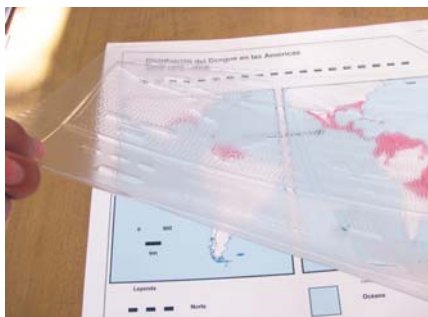
The international team is interdisciplinary, involving Cartography, Geography, Design, Sociology, and Special Education, together with specialisations in visual and aural handicap. This Project has been carried out with the aim mainly of helping children with visual and aural handicaps to understand, by means of geographic teaching methods, the issue of global warming using tactile cartographic and learning material, strengthening their observation and grasp of the environment from a sensory point of view through the images, texts and decoding of the language of cartography.



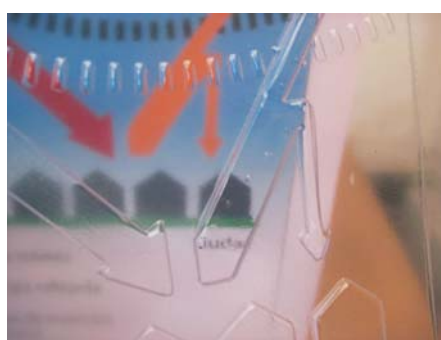
Research team from Argentina, Brazil, Chile and Peru

The main aim that the research team set for itself was: “To understand, through the media of Geographic teaching, the issue of global warming, using tactile cartographic material, to strengthen perception and grasp of the environment from a sensory perspective through the images, texts and comprehending the language of cartography”.

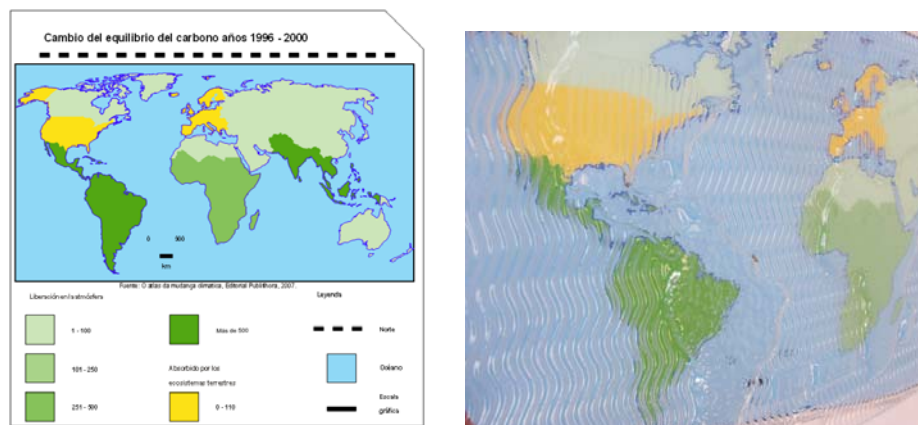
The products made during the four years of the project relate, in the case of the tactile maps, with: Natural wonders of the world under threat from hazards, Change in the carbon balance, Retreat of the glaciers of the world, Polar ice in the northern hemisphere, Dynamics of glaciers in the north-west sector of the Antarctic peninsula 1948 – 1992, and the Distribution of dengue in the Americas. In the case of the tactile sheets, the topics covered were: dengue, the desertification process, death in natural disasters and the greenhouse effect. Each one of the tactile maps is accompanied by a Users Guide, with the intention that blind children may have a complete document about how to use and read the maps in a suitable way when there is no other person available to guide them.



Tactile map and sheets about Dengue



Tactile sheets about desertification and the greenhouse effect



Maps on Change in the Carbon Balance

To develop the various themes in tactile maps and sheets, the contents of the programs that the pupils need to cover in their respective countries was studied. This program needs to be fulfilled in such a way as to enable the pupils to use the material in the classroom and learn, in a different way, the subjects covered by their teachers. At the same time, the research team based their study on a solid theoretical framework within the area of handicap, education, geo-cartography and multi-sensory media.

The process of making tactile products for educational integration has been one of the most demanding and slowest stages to take on, mainly because of how complex it is to work with textures and relief shapes that replace visual design and traditional graphics, within a subject as complex as “global warming”.

After creating the tactile cartographic models, most of the time dedicated by the research team was spent on preparing the instruments for testing the material, the application of the evaluation tests and the subsequent optimization of the products. This process led to the creation of at least three versions of new tactile material, thus enabling the pupils to achieve an understanding of 90 % of the information portrayed.

Some of the conclusions of the research are stated here as follows:

- A set of tactile maps and teaching materials has been created, to benefit the learning processes of blind and deaf school students.
- The materials actually do produce a setting that favours and is positive for encouraging and building new learning structures.
- The cartographic material produced by this project should be used experimentally and in parallel to other methods over coming years, both for pupils at regular schools and those who have one of these two handicaps, at least in the schools of the participating countries and where the assessment of the material has been carried out.

- The material created is multisensory and attractive for all kinds of users, so it can perfectly be used in integrated and regular schools.
- School students in the other Spanish-speaking countries that are not participating directly in the project, will be able to benefit from the products made if they can arrange a cooperation agreement with “Correos de Chile” (the Chilean post office, for the free shipping of the material) from the year 2013.